

## **Draft Existing Use Determination and Rationale:**

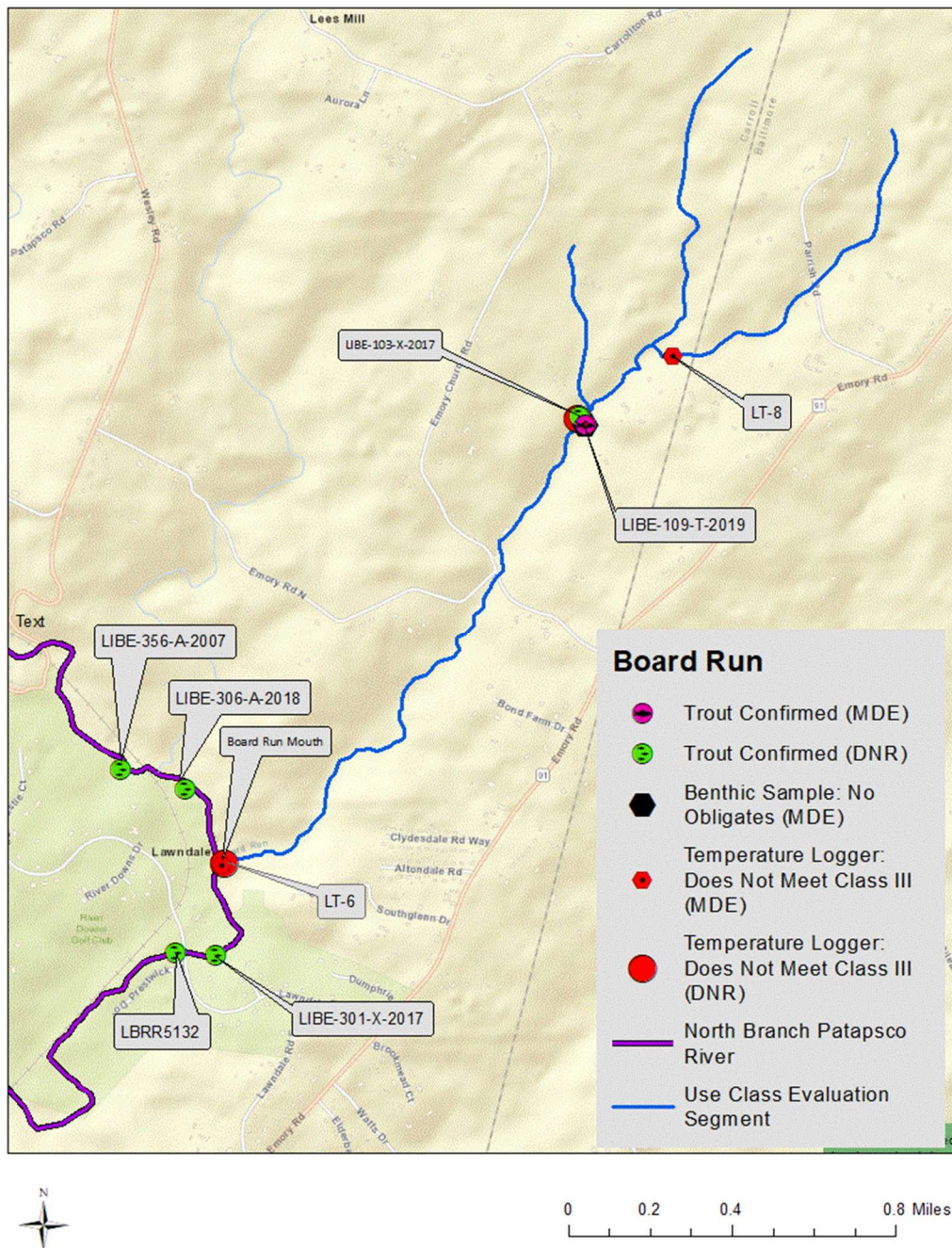
### **Board Run (Baltimore and Carroll Counties)**

**April 14, 2020**

#### **Description of Setting and Data Sources**

Board Run (12-digit 021309071048) is a Use Class I-P tributary to the North Branch Patapsco River upstream of Liberty Reservoir near Hampstead. MDDNR's Fisheries Program, MDDNR's MBSS Program, and MDE's Field Services have conducted surveys of Board Run. The figure below shows the location of Board Run along with relevant sampling stations. The data results (Tables 1 and 2), including water temperature and trout presence information are provided below.

Figure 1. Board Run



## Temperature Data Summary for Board Run

Water temperature data were collected at 4 sampling events from 2017 to 2019. Two loggers were deployed by MDDNR and two were deployed by MDE. All four stations' temperature results fail to meet the Class III temperature criterion.

Table 1. Board Run Water Temperature Logger Data

| Date | Station ID      | Stream    | Data Submitter          | # Temp Readings | Percent>20°C | Percent>24°C | Avg Daily Mean | Daily Max |
|------|-----------------|-----------|-------------------------|-----------------|--------------|--------------|----------------|-----------|
| 2019 | LT-6            | Board Run | MDE Field Staff         | 8735            | 54.3%        | 1.3%         | 20.04          | 25.62     |
| 2019 | LT-8            | Board Run | MDE Field Staff         | 8735            | 24.9%        | 0%           | 18.7           | 23.64     |
| 2017 | LIBE-103-X-2017 | Board Run | MDDNR MBSS              | 6624            | 29%          | 0%           | 18.88          | 23.19     |
| 2017 | Board Run Mouth | Board Run | MDDNR Fisheries Program | 6624            | 46%          | 0%           | 19.78          | 23.18     |

\*Water temperature logger data assessed from June to August. The “Daily Max” represents the maximum temperature from June to August.

## Biological Data Summary for Board Run

Brown trout were found during 2 of the 3 fish sampling events along Board Run. Only one of these sampling events demonstrated the presence of multiple year classes of brown trout. No young-of-year brown trout have been found in Board Run. The MDDNR Fisheries did not attempt to collect coldwater obligate benthic macroinvertebrate species. MDDNR MBSS and MDE sampling events did not yield any coldwater obligate benthic macroinvertebrate species.

Also shown in Table 2 are four sampling stations located on the North Branch Patapsco River. Although these stations are not located on Board Run, they are located near the confluence. The sampling events associated with these stations demonstrated the presence of both young-of-year and multiple year classes of brown trout.

Table 2. Board Run Biological Data

| Date      | Station ID      | Stream                      | Data Submitter          | Species     | Count | Maturity                        |
|-----------|-----------------|-----------------------------|-------------------------|-------------|-------|---------------------------------|
| 2019      | LIBE-109-T-2019 | Board Run                   | MDE Field Staff         | brown trout | 1     | Adult                           |
| 7/18/2017 | LIBE-103-X-2017 | Board Run                   | MDDNR MBSS              | brown trout | 4     | Multiple Year Classes Adult     |
| 6/8/2016  | Board Run Mouth | Board Run                   | MDDNR Fisheries Program | -           | -     | -                               |
| 8/4/2017  | LBRR5132        | North Branch Patapsco River | MDDNR Fisheries Program | brown trout | 1     | Adult                           |
| 7/26/2017 | LBRR5132        | North Branch Patapsco River | MDDNR Fisheries Program | brown trout | 9     | Multiple Year Classes of Adults |
| 9/1/2016  | LBRR5132        | North Branch Patapsco River | MDDNR Fisheries Program | brown trout | 15    | Multiple Year Classes with YOY  |

| Date      | Station ID      | Stream                      | Data Submitter                  | Species     | Count | Maturity                       |
|-----------|-----------------|-----------------------------|---------------------------------|-------------|-------|--------------------------------|
| 7/11/2018 | LIBE-306-A-2018 | North Branch Patapsco River | MDDNR MBSS & MDE Field Services | brown trout | 7     | Multiple Year Classes with YOY |
| 7/26/2017 | LIBE-301-X-2017 | North Branch Patapsco River | MDDNR MBSS                      | brown trout | 9     | Multiple Year Classes Adult    |
| 7/19/2007 | LIBE-356-A-2007 | North Branch Patapsco River | MDDNR MBSS                      | brown trout | 18    | Multiple Year Classes with YOY |

\*YOY - young-of-year. Fish sampling and water temperature data at the Board Run Mouth station were collected in separate years, 2016 and 2017, respectively.

### **DNR Fish Stocking**

In a personal communication, Mark Staley (Maryland DNR Inland Fisheries Service Central Region Manager) has stated that the Freshwater Fisheries program has not stocked the North Branch of the Patapsco River upstream of the Liberty Reservoir since at least 1988. Records of stocking before this time may be unavailable, but the reproducing trout populations in this segment are not the result of stocking.

### **Additional Information**

A naturalized self-sustaining brown trout population has been observed in the North Branch Patapsco River. Trout have been sampled both upstream and downstream and the Board Run confluence.

## Existing Use Determination and Rationale

### Board Run

*Current Use Class:* Class I-P

*Existing Use Determination:* Board Run, from its confluence with the North Branch Patapsco River (39.522341° N, -76.875197° W) to its headwaters, supports naturalized self-sustaining brown trout (*Salmo trutta*) and water temperatures that have an average daily mean below 20°C, a maximum below 26°C, stay below 24°C at least 90% of the time and below 20°C at least 45% of the time (Figure 2).

*Is this Existing Use Determination Consistent with the Currently (March 2020) Designated Use Class:* **No.** The existing use of Board Run as described above, requires that water temperatures remain significantly colder than the water quality criterion established to protect the current use class (Class I-P) designation. As a result, this existing use of Board Run requires protections to maintain the colder water temperatures currently found in Board Run and different than those afforded by the current use class designation of I-P.

*Changes Proposed to the Current Designated Use Class:* Though it is clear that the designated use class of Board Run should be revised to reflect and be protective of the existing use, current temperature data do not support the re-designation of Board Run to Class III-P without conducting a use attainability analysis (UAA). Since Maryland is in the process of redefining Class IV/IV-P and potentially developing a new ‘cool water’ use class as part of the work of the Cold Water Advisory Committee, it is not prudent to redesignate Board Run to Class IV-P at this time. Instead, and until Maryland conducts either a UAA or establishes new definitions for Class IV and a cool water use, MDE will formally recognize Board Run as having an existing use requiring colder water temperature than its current criterion.

*Rationale for the Existing Use Determination:* Recent monitoring efforts in Board Run and in the nearby North Branch Patapsco River (the stream to which Board Run flows into) have found multiple year classes and young-of-year (YOY) brown trout (*Salmo trutta*). Several YOY brown trout observations have confirmed the presence of a naturalized self-sustaining population directly at the confluence of the North Branch Patapsco River and Board Run. The sampling event located at the LIBE-103-X-2017 station suggests that the habitat utilized by this population extends far into Board Run. Furthermore, the lack of any major fish barriers provides reasonable assurance of the biological connectivity of the brown trout found at these different sampling sites and suggests that the brown trout habitat extends to the headwaters of Board Run. Finally, the LT-8 temperature logger data suggests that the upstream portion of the Board Run is colder than the North Branch Patapsco. This suggests that temperature is not a barrier to trout movement. Hence, the State is recommending that all of Board Run (from mouth to headwaters) be assigned the existing use as described above.

Since none of the water temperature data collected in Board Run or the nearby portions of the North Branch Patapsco River meet the Class III temperature criterion, the State cannot justify redesignating any portion of Board Run to Class III without further improvements in water temperature or conducting a UAA. And even though these water temperature data may support a redesignation to Use Class IV or the conceptualized ‘cool water’ use currently being discussed, since these uses are in flux, the State prefers to protect this stream with the protections under Tier I Antidegradation Policy until those uses are properly revised and/or developed.



Figure 2: Final Existing Use Determinations for Board Run

